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Quality of Life Considerations

The public has expressed various concerns about possible effects of remedial activities on the quality of life of people residing near the river or using the river in the vicinity of the remediation activities. The USEPA responded to these concerns in the RS (TAMS Consultants, Inc. January 2002). As a means of ensuring that such concerns are addressed and potential impacts are minimized to the extent practicable, the USEPA decided to develop quality of life performance standards. The standards were developed early on to ensure that the public had an opportunity to provide comments and to ensure that the standards are considered in designing the remedy.

The quality of life concerns identified in the RS primarily relate to traffic, noise, construction lighting, air quality, odor, aesthetics, and recreation. While there may be short-term impacts with respect to some of these issues, the project will follow strict requirements (including adherence to the performance standards) to minimize and mitigate potential impacts to the extent practicable. The RD Team will comply with the quality of life performance standards during design. It is expected that any temporary impacts will be manageable and will be far outweighed by the long-term benefits of the remediation for human health and the environment. In addition, to ensure the protection of the community and the environment, extensive monitoring will be conducted throughout the life of the project, and the effectiveness of the performance standards will be reviewed as the remediation process continues and after Phase 1 dredging. Phase 1 includes dredging at an initially reduced scale, with extensive monitoring that will be used to compare the dredging operations against the performance standards. If necessary, the standards will be refined or adjusted for Phase 2, which will be the remainder of the dredging operation. Information collected during Phase 1 dredging will be useful in establishing the final performance standards by which the remedial activities will be completed.

Assessing impacts of the RA involves identifying and estimating the effects of remediation activities (such as facility construction and transportation operations) on quality of life factors. Modeling to evaluate quality of life impacts (e.g., air quality and noise) will also be completed by the RD Team using USEPA-approved models. Modeling is a typical method used in design processes. The USEPA will review the results of the modeling to ensure accuracy. Impact as-

assessment will proceed in conjunction with facility siting and dredging-design development.

The quality of life concerns that were determined by the USEPA to require performance standards (as established in the ROD) are defined further below. Each of these concerns was reviewed and considered in developing the performance standards. Other quality of life considerations (that have the potential to affect the community or the environment) are also presented.

4.1 Public Concerns

4.1.1 General Concerns

The following are some of the quality of life concerns that were raised by some members of the public and that have been documented in the RS:

- Dredging would severely affect the overall public's quality of life, the rural lifestyle of the Upper Hudson, and the aesthetic value of living in the region.
- Placement of the sediment processing facilities would have an adverse impact on the overall quality of life of those individuals near the processing facilities.
- Operation of the sediment processing/transfer facilities and storage of operating materials and dredged sediment could be hazardous, dangerous, and disruptive of the community's quality of life.
- Possible effects on agriculture would include changes to drainage in farmland bordering the river; possible adverse effects during spring flooding; impacts on wells that are hydraulically connected to the river; possible damage to soils and water conservation systems from heavy construction equipment; use of large areas of agricultural land for sediment processing facilities and backfill sources; and hindrances to agricultural activities during construction.
- Several waterfront festivals may be disrupted by project activities.

The USEPA acknowledges these concerns, which are being addressed by developing the quality of life performance standards and by reviewing the design and/or the facility siting reports.

4.1.2 Air Quality

Various remedial activities could result in the release of airborne pollutants. The public has expressed the following concerns regarding air emissions:

- The project will produce diesel fumes and exhaust, possibly release contaminants to the ambient air, and produce dust and other particles.
- Volatilization during dredging may disrupt the ecosystem, including upland areas, crops, habitat, and inland waters.

The receptors of air emissions include the public and workers at the site. The USEPA has assessed these concerns and has determined that the most significant potential for generation of air emissions is associated with the dredging and sediment processing/transfer facility operations. Air monitoring, engineering controls, appropriate personal protection equipment for workers, and standard safety procedures will be used to protect on-site workers and nearby communities. As part of the design, a Worker Health and Safety Plan (W HASP) will be developed. With public involvement, a Remedial Action Community Health and Safety Plan (RA CHASP) that will include air monitoring to address any potential risk associated with dredging and processing of PCB-contaminated sediments will be developed and implemented.

4.1.3 Odor

Potential sources of odor from the project include construction equipment and the dredged material from the river (including aquatic vegetation that may require removal as part of remediation). The public has expressed concern that the project will decrease air quality and produce odors and has indicated concern that poor air quality and nuisance odors will have a negative impact on local communities, tourism, local wildlife and, eventually, property values.

The USEPA has assessed these concerns and has determined that odors from construction equipment are not likely to be significant, based on experiences at other construction projects where such equipment has been used. Although hydrogen sulfide (which has an unpleasant odor) is present in the river sediments, concentrations are sufficiently low as to preclude the generation of noticeable and persistent odors from hydrogen sulfide in dredged material (RS White Paper, "Odor Evaluation" [TAMS Consultants, Inc. January 2002]). If hydrogen sulfide odors are encountered, proven strategies shall be implemented to mitigate adverse effects.

4.1.4 Noise

The public has expressed the following concerns regarding noise:

- Elevated noise levels will result from increased traffic and equipment use, and noise during evening and night hours will be disruptive.
- Noise from dredging operations will have a negative impact on milk production in dairy cows.
- Noise from dredging and operation of the sediment processing/transfer facilities will disrupt local wildlife, especially territorial species.

The USEPA has assessed these concerns and has determined that the noise associated with construction and continuous operation of the sediment processing/transfer facilities and hydraulic and mechanical dredging operations is not

expected to be a significant concern. A variety of equipment and proven procedures are available and shall be implemented, as appropriate, to control and mitigate noise impacts.

4.1.5 Lighting

Artificial lighting systems will be used to illuminate nighttime dredging and in-river transport operations as well as land-based sediment processing/transfer facility operations. The public has expressed the following concerns regarding lighting:

- Continuous lighting needed to complete the project would disrupt dairy cattle.
- Project lighting may be disruptive for local communities.
- Project lighting will adversely affect local wildlife (mammals and birds) and insects.

The USEPA has assessed these concerns and has determined that the positioning of lights, brightness, and direction are key factors in minimizing the potential for off-site impacts. While nighttime lighting requirements for the work will need to conform to established industry safety standards, it will not be necessary to use high-mast lighting systems that could cause off-site impacts at dredging sites or at the sediment processing/transfer facilities. To the extent practicable, lighting shall be directed toward work areas and away from neighboring properties. In addition, the use of low-mast lights and shielding will limit off-site glare.

4.1.6 Navigation

The public has expressed the following concerns regarding navigation:

- Project-generated traffic (including vessel traffic) would disrupt the community.
- Clear and safe passage of recreational vessels along the Champlain Canal will be impeded, and bottlenecks at locks will be created.

The USEPA has assessed these concerns and has determined that because of the relatively small area of the river that will be affected by dredging at any given time, recreational activities on the river will remain substantially unaffected in areas not immediately adjacent to the dredging operation. Adverse impacts are not expected for recreational boaters during implementation of the selected remedy. A portion of the dredging, when completed, will provide an expanded and safer capacity for recreational use of the river. Commercial use of the river will also be considered, and the project will be designed to minimize impacts on both commercial and recreational uses.

4.1.7 Other Quality of Life Considerations**Aesthetics**

Residents who live along the riverbanks expressed concern about the dredging operations impairing their views of the river. However, the majority of residences in the project area would not be near the dredging operation, and the dredging operation is a mobile operation, targeted to limited areas of the river. In general, dredging is expected to occur directly in front of a particular location in a targeted area for a short period of time (several weeks) and be within view for several weeks longer. Thus, potential visual impacts from the dredging would apply to only a small portion of the 40 miles of river at any given time and would be temporary. The visual impact from the dredges will be short-term and limited by the geography of the targeted dredging.

Traffic

The public has expressed concerns regarding the increased road traffic that would be caused by this project. For example, members of the public expressed concern that the volume of sediment to be removed and the amount of stationary and mobile equipment needed to do so would put a great deal of stress on local roadways in terms of congestion and increased road maintenance.

In response to these concerns, the USEPA determined that dredged materials will be taken from the site by barge and/or rail rather than by truck, and material used for backfill will be transported within the Upper Hudson River area by barge and/or rail.

The public also had concerns about potential impacts from vehicle and truck traffic caused by workers constructing the sediment processing/transfer facilities. However, given that this increase in road usage is relatively small (based on evaluations done as part of the RS), it is unlikely that there will be an escalation in road hazards or a need for increased road maintenance as a result of implementing the selected remedy.

Other Uses of the River

Risks associated with exposures while swimming in the Hudson River (i.e., from ingestion of water, wading in the river, etc.), as discussed in the revised human health risk assessment (TAMS Consultants, Inc. January 2002), are reported to be within the acceptable risk range. It is anticipated that during the remediation project, PCB concentrations in the river will remain at or near current levels. Swimming in the immediate area being actively dredged will be prohibited (primarily for safety reasons). Therefore, during the project, as now, the risk associated with swimming in the river will remain within the acceptable range. It is anticipated that the impact on recreational fishing will be minimal during the remediation. Anglers will be able to find alternate sites to fish where the dredging and backfill operations are not proximate; impacts (due to remedial activities) on fish habitat will be temporary and will affect only limited areas and certain species; and mi-

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nor, temporary resuspension of PCBs during dredging should not affect catch-and-release fishing. The fish consumption advisories are expected to remain in effect during the remediation. However, the PCB remediation offers long-term prospects of renewed and enhanced recreational fishing by reducing the level of PCBs found in fish.

The quality of life considerations for major project remedial activities are identified in Table 4-1.

Table 4-1 Quality of Life Considerations for Major Remedial Action Project Activities

| Major Project Activities | Quality of Life Considerations ¹ | | | | |
|---|---|------|-------|-----------------------|------------|
| | Air | Odor | Noise | Lighting ² | Navigation |
| Dredging | | | | | |
| Sediment Handling | √ | √ | √ | √ | √ |
| Barge/Tug Use | √ | | √ | √ | √ |
| Mechanical Dredging | | | | | |
| Crane/Excavator Operations | √ | | √ | √ | √ |
| Bucket Operation (clam shell; others) | √ | | √ | √ | |
| Screening/Separation Operations | √ | | √ | √ | |
| Hydraulic Dredging | | | | | |
| Crane/Excavator Operation | √ | | √ | √ | √ |
| Cutter Head Operation | | | √ | | |
| Pumping | √ | | √ | | |
| Piping (to barge) | | | √ | √ | √ |
| Containment System (Installation, Monitoring, and Removal) | | | | | |
| Sheet Pile | √ | | √ | √ | √ |
| Silt Curtains | | | | √ | √ |
| Air Curtains or Other Methods | | | | | √ |
| Power Generation | | | | | |
| Generator Operations | √ | | √ | | |
| Backfilling/Backfill Transport | | | | | |
| Barge/Tug Operations | √ | | √ | √ | √ |
| Crane/Excavation Operation | √ | | √ | √ | |
| Sediment Transport to Facility | | | | | |
| By Barge | | | | | |
| Loading Operations/Sediment Handling | √ | √ | √ | √ | |
| Tug Operations | √ | | √ | √ | √ |
| By Pipe | | | | | |
| Transfer by Piping | | | √ | √ | √ |
| Use of Booster Pumps | √ | | √ | | |
| Sediment Transfer at Facility | | | | | |
| Sediment Handling | √ | √ | √ | √ | |
| Barge Unloading at Wharfs/Docks | √ | √ | √ | √ | |
| Excavator/Loader Use Operation | √ | √ | √ | √ | |
| Crane (clamshell) Use Operation | √ | √ | √ | √ | |

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|--|---|------|-------|-----------------------|------------|
| | Air | Odor | Noise | Lighting ² | Navigation |
| Sediment Processing at Land-based Facility | | | | | |
| Storage/Staging/Holding of Sediment | √ | √ | √ | √ | |
| Stockpiling | √ | √ | √ | √ | |
| Impoundment Use | √ | √ | | √ | |
| Separation, Screening, and/or Hydrocyclone Operation | √ | √ | √ | √ | |
| Dewatering, Gravity Separation, Filter Press Use, and Centrifuge Use | √ | √ | √ | | |
| Water Treatment | | | | | |
| Storage | √ | √ | | √ | |
| Clarification | √ | √ | | √ | |
| Filtration | √ | √ | | √ | |
| Oxidation | | | | | |
| Carbon Use | | | | | |
| Solidification | | | | | |
| Solidification Agents Use | √ | | | | |
| Materials/Chemical Storage | | | | | |
| Stabilized Sediment Loading | | | | | |
| Sediment Handling | √ | √ | √ | | |
| To Rail | | | | | |
| Railcar Staging | | | √ | √ | |
| Loading by Heavy Equipment | √ | | √ | √ | |
| Rail Operations (Locomotive Operation) | √ | | √ | √ | |
| To Barge | | | | | |
| Barge Staging | | | √ | √ | |
| Loading by Heavy Equipment | √ | | √ | √ | |
| Barge Operation with Tug | √ | | √ | √ | √ |
| Transportation (within project area only) | | | | | |
| Rail Transport | | | √ | √ | |
| Barge (with tug) transport | | | √ | √ | √ |
| Other Activities | | | | | |
| Sampling Activities | | | | | |
| Sampling Equipment Use | | | √ | √ | √ |
| Surveying (by boat or on land) | | | √ | | √ |
| Deliveries/Shipments | | | | | |
| Vehicle Use | √ | | √ | | |
| Water Transportation (including oversight vessels) | | | | | |
| Vessel Use | √ | | √ | √ | √ |
| Facility Construction Activities and Decommissioning Activities | | | | | |
| Heavy Equipment Use | √ | | √ | √ | |
| Hand Tool Use | | | √ | | |
| Truck Operation | √ | | √ | | |

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| Major Project Activities | Quality of Life Considerations ¹ | | | | |
|--|---|------|-------|-----------------------|------------|
| | Air | Odor | Noise | Lighting ² | Navigation |
| Other Typical Construction Activity (hammering, etc.) | | | √ | | |

¹ Other quality of life considerations may be identified during review of the design.

² During night operations, lighting will be a quality of life consideration for most project activities listed in the table.

Key:

√ = Activity has potential to create a quality of life impact.